

Descemet's Membrane Detachment Associated with Inadvertent Viscoelastic Injection in Visco canalostomy

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We report a case of Descemet's membrane detachment, a rare complication of visco canalostomy. During the operation, the injection cannula was directed slightly oblique to the Schlemm's canal rather than parallel to it. Localized corneal whitening developed adjacent to the injection site during viscoelastic injection. One week postoperatively, corneal edema decreased and Descemet's membrane detachment was noted. Nine months after surgery, the cornea was clear while the Descemet's membrane detachment remained. And IOP was 19 mmHg without any medications.

We think that improper cannula positioning during viscoelastic injection may cause Descemet's membrane detachment, a rare complication of visco canalostomy.

Key Words: Descemet's membrane detachment, glaucoma, inadvertent viscoelastic injection, visco canalostomy

INTRODUCTION

Visco canalostomy can reduce intraocular pressure (IOP) without full-thickness penetration into the anterior chamber, thereby minimizing the risk of postoperative complications such as over filtration and hypotony. The common complications of visco canalostomy are hyphema, IOP increase, and rupture of the trabeculo-Descemet's windows.¹⁻⁴ We observed a case of Descemet's membrane detachment which is a rare complication of visco canalostomy. Only one case of Descemet's membrane detachment has been reported so far.⁴

Our operation was video taped. Upon review, we were able to make inferences as to the cause of the Descemet's membrane detachment.

CASE REPORT

A 72-year old Korean male patient was referred for management of a high IOP. He had suffered from headaches and ocular pain for 2 weeks. He had had no prior history of intraocular surgery, trauma, or systemic disease, except for chronic pancreatitis. His visual acuity was hand motion in the right eye and the IOP was 37 mmHg after maximal medical treatment. In a slit lamp examination, the cornea was edematous, but a definite abnormality such as Descemet's membrane detachment was not found; however there was a lens dislocation. On ultrasonography, the lens was dislocated to the inferior pars plana, and there were no definite abnormal findings in the vitreous or retina. We had planned to undertake vitrectomy, combined with lensectomy, but the patient refused major ocular surgery. We decided upon visco canalostomy alone.

In the visco canalostomy procedure, a 4 × 4 mm rectangular, deep scleral flap was made underneath a 5 × 5 mm superficial scleral flap. The Schlemm's canal was de-roofed at the 11 o'clock meridian with a #15 Bard-Parker blade. The floor of the Schlemm's canal and Descemet's membrane was depressed with a cellulose sponge. A finely polished cannula was introduced gently into the ostia of the Schlemm's canal to about 3 mm on both the left and right. Sodium hyaluronate was injected into both openings of the Schlemm's canal. Mild resistance was noted during the

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injection to the right side, and localized cornea whitening developed at the injection site (Fig. 1). The outer flap was sutured tightly.

On the first postoperative day, the IOP was 21 mmHg without any medications, and a localized corneal edema, at the superior portion, was noted. One week after surgery, the patient's best-corrected visual acuity was 0.3, and the IOP was 17 mHg. In the slit lamp examination, the corneal edema and Descemet's membrane detachment were noted in the superior area. No further procedures were considered necessary because the Descemet's membrane detachment seemed to be stable and did not interfere with the visual axis. Nine months after surgery, the best-corrected visual acuity was 0.6 and the IOP was 19 mmHg. The cornea was clear, but the Descemet's membrane detachment remained unchanged (Fig. 2).

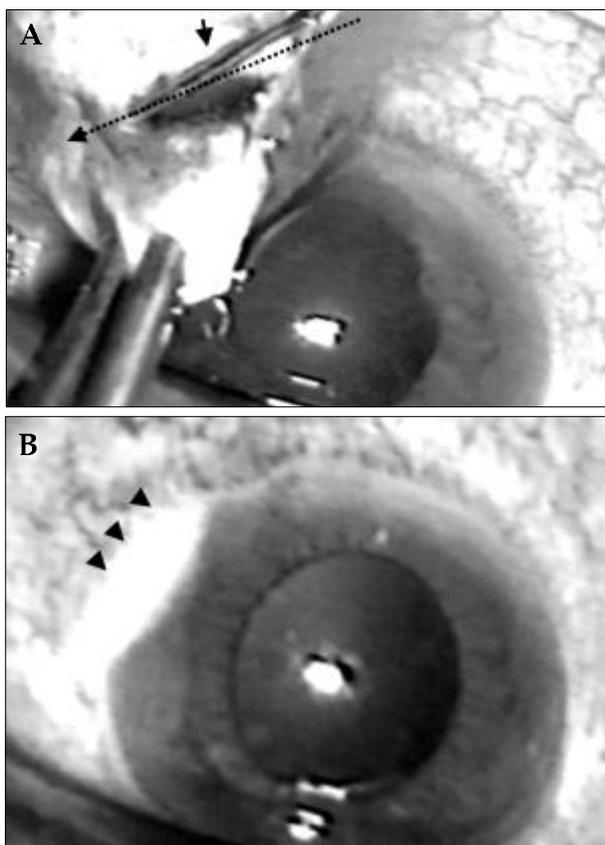


Fig. 1. In operation videotape, injection cannula (arrow) is directed oblique to Schlemm's canal (A). With viscoelastic injection, localized corneal edema (arrow head) is seen at the area adjacent to the injection (B).

DISCUSSION

Descemet's membrane detachment is a rare complication of viscocanalostomy.⁴ Keeping the anatomical structure of the Schlemm's canal and cornea in mind, we found that gentle injection of viscoelastics at the proper position does not cause significant detachment of the Descemet's membrane. Injected viscoelastics are more likely to reflux from ostia of the Schlemm's canal, widening of it, or induce a rupture of the trabecular meshwork, rather than cause a Descemet's membrane detachment.

We monitored the video tape, recorded during the operation, to determine the cause of the Descemet's membrane detachment. We noted that the injection cannula was directed slightly oblique to the Schlemm's canal, rather than parallel to it (Fig. 1). Corneal whitening developed adjacent to the injection site, which was at the edge of the Descemet's membrane detachment (Fig. 1). We were unable to observe the Descemet's membrane detachment during the operation. We also monitored the video because of the corneal edema. However, the Descemet's membrane detachment seemed to have occurred during the operation, we think, due to the appearance of corneal whitening adjacent to the edge of the Descemet's membrane detachment. It is possible that the Descemet's membrane detachment, and rupture, was concealed because of the viscosity of the viscoelastics. After absorption of the viscoelastics, the Des-

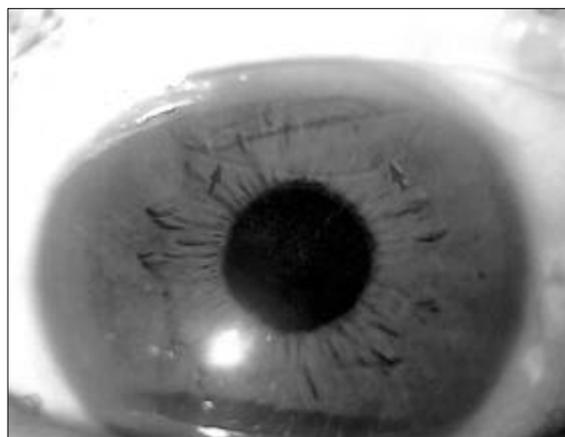


Fig. 2. Nine months after viscocanalostomy. There is a stable Descemet's membrane detachment (arrow).

cemet's membrane detachment became visible.

Unlu and Aksunger reported a case of Descemet's membrane detachment, and stated, the mechanism was unknown.⁴ Possible mechanisms for the Descemet's membrane detachment during viscocanalostomy seem to be the improper positioning or direction of the cannula, a too rapid injection, or the presence of anatomic abnormalities, such as a weakening of the attachment between the cornea stroma and the Descemet's membrane.

We think that proper cannula positioning, and a gentle injection of viscoelastics, are important factors in the prevention of Descemet's membrane detachment during viscocanalostomy.

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